Polynomial Factoring EXAM (version 602)

1. **The quadratic formula says if $ax^2 + bx + c = 0$ then $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$. Use the quadratic formula to solve the following equation.**

$$x^2 - 4x + 15 = 0$$

Simplify your answer(s) as much as possible.

2. **Express the product of $-2 + 7i$ and $6 + 8i$ in standard form $(a + bi)$.**

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3. **Write function $f(x) = x^3 + 8x^2 - 3x - 90$ in factored form. I'll give you a hint: one factor is $(x - 3)$.**

4. **Polynomial p is defined below in factored form.**

$$p(x) \;=\; -(x+6)^2 \cdot (x+2) \cdot (x-1) \cdot (x-4)^2$$

Sketch a graph of polynomial $y = p(x)$.